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The relationships between postgraduate research students' psychological attributes and their supervisors' supervision training

Melissa Ng Lee Yen Abdullah [a] *, Terry Evans [b]

[a]*School of Educational Studies, Universiti Sains Malaysia, Minden, Penang, 11800, Malaysia*
[b]*School of Education, Deakin University, Geelong Waurn Ponds, Victoria, 3216 Australia*

Abstract

This study explored the research experiences of postgraduates and determines their relationships with the supervisors' training backgrounds and the student's psychosocial attributes. A total of 134 higher degree research students from an Australian university were sampled. The Postgraduate Research Experience Survey (PRES) was administered online to gauge the research experiences of the postgraduates. Overall, the respondents' ratings of their experiences in supervision, skill development, and goals of the research project were above average. Infrastructure and intellectual climate, however, were rated as average by the respondents. This study also found that the respondents' research experiences differ according to supervisor's background and it was related to their psychosocial attributes.

Keywords: Research experience, postgraduates, supervision, higher education

1. Introduction

The recent trend in higher education policy towards developing human capital and building research capacity places particular emphasis on postgraduate research as the incubator of knowledge-based workforce that will drive a nation's research and development (R&D) and stimulates economic growth (LERU, 2007; UNESCO, 2007). As such, it is not surprising that many universities internationally are emphasising the quality of graduate research education provided to their students, particularly in terms of their research experiences. National surveys were implemented, such as in Australia and the UK, to determine the research experiences received by their master and doctoral degree students. In line with this development, many universities are also striving to improve the development of research supervision (Affero Ismail, Norhasni Zainal Abidin, & Aminuddin Hassan, 2011). Research supervision has become a vital process in the successful of postgraduate studies. In order to ensure the quality of supervision, most universities have some prerequisite requirements that must be fulfilled by an academic staff member before he or she can be allowed to take the role as principal supervisor (advisor) of higher degree by research student. For instance, a principal supervisor needs to possess a degree qualification that is equivalent to, or higher, than the candidate and have been an associate supervisor through to successful completion of a previous

* Melissa Ng Lee Yen Abdullah, PhD. Tel.: 6-04-6535186
E-mail address: melissa@usm.my

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candidate. This latter requirement may take several years to achieve, especially where the candidate is part-time. In many cases it would be desirable both for academic staff members and for the university in general to have a speedier way of qualifying. For this reason, Deakin University, where this study was based, implemented a Fast-Track Supervisor Training Program is designed to provide an accelerated means of meeting the requirements (Institute of Research Training, 2011). The program is comprises of a series of training workshops, programs, and specific courses which aim to provide knowledge, skills, and practical experiences on research supervision to academic staff. In addition, academic staff in the program are also required to have significant involvement or experience, whether formal or informal, with prospective or actual higher degree research candidate. With good planning, the Fast-Track program can be completed within a year or less (Institute of Research Training, 2011).

Apart from the quality of supervision, postgraduates' research experiences may also be influenced by their individual characteristics, such as competency in learning skills and motivation to manage a research project. Since the 1990s, scholars have stressed the importance of learning skills in higher education (Biggs, 2003; Pierce & Lange, 2000; Zimmerman & Paulsen, 1995; Kennett, 1994). Arguably, such characteristics are also crucial for research students to engage with their studies. Astin (1984) notes that one of the critical factors determining students' involvement in higher education is the amount of psychological energy they devote to their academic experiences. This indicates that motivational beliefs, such as self-efficacy, may be critical in determining students' confidence and motivation to undertake a research. Additionally, the extent of social support that they receive may also affect the experiences during their higher degree research program. These psychosocial factors ought to be taken into account when postgraduates' research experiences are examined. Literature reviews show that limited studies have explored the research experiences of postgraduates according to supervisor's training background and students' psychosocial attributes. Hence, this study aimed to fill in the literature gap by exploring the research experiences of postgraduates at an Australian university and to compare the supervision experiences of students under 'normal' and 'fast-track' supervisors. This study also attempted to determine the relationships between postgraduates' research experiences with their self-efficacy, competency in independent learning and social support.

2. Research design and methodology

The population of this study comprised 1,200 higher degree (Masters and PhD) by research candidates at Deakin University. Clearance was obtained from the University's human research ethics committee for an email to be sent to these candidates inviting them to participate in the study by completing an online survey during April and May 2011. The Postgraduate Research Experience Survey (PRES 2009) was the underlying instrument used in the survey to gather data on postgraduates' research experiences. It is a valid and reliable measurement which measures students' experiences in (a) supervision (α=0.91), (b) skill development (α=0.82), (c) infrastructure (α=0.82), (d) intellectual climate (α=0.82), and (e) goals and standard of research project (α=0.93). This study found that the overall Cronbach's alpha value for the 27-item PRES was α=0.91, indicating that it is a highly reliable instrument. PRES is a five-point likert scale with possible responses range from 'strongly agree' to 'strongly disagree'. Minor modification was made to the items in the instrument to adapt to the context and structure of higher degree research programs at the sampled university. For instance, a "not applicable' option was added to cater for students who may find some of the items not applicable, for instance off-campus students and those who may still be early in their candidature. A subscale on thesis examination, which focuses on *viva voce,* was dropped as it is irrelevant to the Australian higher education context.

Three instruments were used to measure the postgraduates' psychological attributes. The Self-Efficacy Subscale (α= 0.83) was employed to gauge their confidence in learning and conducting research independently while the Learning Strategies Subscale (α=0.89) was used to measure their independent learning skills at postgraduate level. Both instruments were adapted from the Motivated Strategies Learning Questionnaire (MSLQ) developed by Pintrich, Smith, Gracia, and McKeachie (1991). The Social Support Subscale (α=0.77) was adapted from PRES (PRES 2009). There were 15 items in total measuring the respondents' psychological attributes in relation to their research activities, for instance, "*I am confident in presenting my research proposals*" and "*I am efficient in managing the*

time spent on my research project". It is a five-point likert scale with possible responses range from 'strongly agree' to 'strongly disagree'.

A total of 134 postgraduates responded to the survey giving a response rate of 11.2% which is congruent with voluntary online survey response rates (Siikamaki &Wernstedt, 2008; Wernstedt & Hersh, 2006). Using data provided by the University, the respondents' names were matched to their supervisors' names, this then enabled the number of candidates with 'fast track' and 'normal' supervisors to be determined. Of the 134 respondents, ten were supervised by 'fast track' supervisors, and 124 by 'normal' supervisors.

3. Findings

3.1. Postgraduates' research experience

Table 1 reveals that the respondents' overall ratings of their experiences in supervision, skill development, and goals of research project were positive. In terms of supervision, seven out of eight items recorded a mean score greater than 4.00. These positive experiences could be attributed to a number of factors, particularly mutual respect during the supervision process, which recorded more than 90% total agreement from the respondents. The majority of the respondents also concurred that their supervisors were able to provide adequate support and feedback. In terms of skill development, the respondents indicated that their experiences in their higher degree research program have enabled them to develop a range of skills, particularly project management skills and analytical skills. The respondents also expressed positive experiences in the goals and standards of their research; more than 80% agreed that they are aware of the required standards for the research project, proposal defence, and the formal monitoring of their research activities. They were less positive about the adequacy of the infrastructure and intellectual climate; these were rated slightly above the mean at 3.77 each, which is congruent with the other national studies in Australia (Australian Graduate Survey, 2009) and in the UK (Hodsdon & Buckley, 2011).

Aspects where improvement may be required include the provision of technical support, financial support, and computing resources. It should be noted that Deakin University has a significant proportion (approximately 40%) of part-time, off-campus research degree candidates whose infrastructure needs (such as, office space) are quite different from those of full-time on-campus students. Likewise, in terms of intellectual climate, the former candidates' responses to statements such as, "*The research ambience in my department or faculty stimulates my work*" need to be expected to be less positive or even 'not applicable'. Notwithstanding this, the findings suggest that it may be worthwhile to develop strategies to enhance departmental research ambience and integration into the department.

Table 1. Postgraduates Research Experiences

Supervision	n	% Total Agreement	Mean	Std. Deviation
S1. My supervisor(s) have the skills and necessary subject knowledge to adequately support my research.	134	89.60	4.46	0.89
S2. My supervisor(s) make a real effort to understand any difficulties I face.	134	83.60	4.30	0.95
S3. I have been given good guidance in topic selection and refinement by my supervisor(s).	134	76.10	4.16	0.91
S4. I have received good guidance in my literature search from my supervisor(s).	133	68.40	3.98	1.03
S5. My supervisor(s) provide helpful feedback on my progress.	134	84.30	4.28	0.91
S6. Mutual respect occurs during the supervision process.	133	91.00	4.50	0.77
S7. My supervisor(s) are available when I need them.	134	71.60	4.00	1.00
S8. My supervisor(s) provide guidance to publish my research	131	67.20	4.02	0.96
Overall Experiences in Supervision			**4.19**	**5.94**

Skill Development				
SD1. As a result of my experience so far I have the skills to manage a research project.	134	80.6	4.11	0.83
SD2. My experience so far has improved my analytical skills.	134	87.4	4.22	0.76
SD3. My experience so far has helped me to develop a range of communication skills.	134	74.2	4.01	0.81
SD4. As a result of my experience so far I have improved my ability to learn independently.	134	79.8	4.16	0.86
SD5. There are adequate opportunities for me to further develop my research skills.	134	76.1	4.06	0.86
Overall Experiences in Skill Development			**4.11**	**3.16**
Infrastructure				
In1. I have adequate access to the equipment necessary for my research.	104	60.8	4.15	1.05
In2. I have a suitable working space.	101	57.1	4.03	1.17
In3. There is appropriate financial support for research activities.	116	50.4	3.66	1.27
In4. There is adequate provision of computing resources and facilities.	100	51.1	3.93	1.21
In5. There is adequate provision of library facilities.	109	68.8	4.39	1.04
In6. I have the technical support I need.		69.1	3.91	1.06
Overall Experiences in Infrastructure			**3.77**	**4.32**
Intellectual Climate				
IC1. My department provides opportunities for social contact with other research students.	119	75.60	4.07	1.04
IC2. My department provides opportunities for me to become involved in the broader research culture.	116	69.00	3.90	1.05
IC3. The research ambience in my department or faculty stimulates my work.	116	55.10	3.66	1.10
IC4. I feel integrated into my department community.	115	52.10	3.42	1.21
IC5. My department provides a good seminar program for research students.	114	64.00	3.88	1.07
Overall Experiences in Intellectual Climate			**3.77**	**4.32**
Goals and Standards of Research Project				
G1. I understand the required standard for the research project (e.g., thesis, dissertation, or master research project)	117	88.00	4.38	0.76
G2. I understand the requirement of proposal defence.	116	89.60	4.39	0.74
G3. I understand the requirements and deadlines for formal monitoring of my progress.	114	81.50	4.22	0.84
Overall Experiences in Goals and Standards of Research Project			**4.32**	**2.20**

Note: Respondents who find any of the items not-applicable (e.g., off-campus students or students who are too early in their candidature) might indicate their responses as 'Not Applicable'. Such responses were not taken into account in the analysis.

3.2. Differences in postgraduates' supervision experiences according to supervisors' training background

This study also compared the supervision experiences of postgraduates under 'normal' supervisors and 'fast track' supervisors. Due to mark differences in sample size between the two categories of respondents, inferential analysis (t-test) was not carried out. Nevertheless, the descriptive statistics in Table 2 suggest that the rating of postgraduates under the 'fast track' supervisors were equally good, if not better, than the 'normal' supervisors. The findings suggest that supervisors who have undergone the training program have sufficient knowledge and skills to supervise. In addition, the respondents also indicated that the 'fast track' supervisors were able to show mutual respect, understand their difficulties, and provide helpful feedback during the supervision processes. This indicates that the Fast-Track Supervisor Training Program is effective for accelerating the preparation of staff to become principal supervisors.

Table 2. Postgraduates' Supervision Experiences according to Supervisor's Training Background

Supervision	Background of Postgraduates' Supervisors			
	"Normal" supervisors (n=124)		"Fast Track" supervisors (n=10)	
	Mean	% Total Agreement	Mean	% Total Agreement
S1. My supervisor(s) have the skills and necessary subject knowledge to adequately support my research.	4.43	88.00	4.80	100.00
S2. My supervisor(s) make a real effort to understand any difficulties I face.	4.27	83.06	4.60	90.00
S3. I have been given good guidance in topic selection and refinement by my supervisor(s).	4.15	75.80	4.30	80.00
S4. I have received good guidance in my literature search from my supervisor(s).	3.97	68.29	4.10	70.00
S5. My supervisor(s) provide helpful feedback on my progress.	4.26	83.87	4.50	90.00
S6. Mutual respect occurs during the supervision process.	4.49	91.05	4.70	90.00
S7. My supervisor(s) are available when I need them.	3.98	70.96	4.20	80.00
S8. My supervisor(s) provide guidance to publish my research	3.98	62.28	4.50	90.00
Overall Experiences in Supervision	**4.19**		**4.46**	

3.3. Postgraduates research experiences and psychosocial attributes

The results of Pearson's Product Moment Correlational Analysis show that the respondents' research experiences were related to their psychological attributes, particularly skill development. As shown in Table 3, skill development was significantly and strongly related to independent learning ($r=0.53$, $p < 0.01$) and self-efficacy ($r=0.51$, $p < 0.01$) (Cohen, 1988). This suggest that the more competent and confident the respondents are in learning and conducting research independently, the more positive is their experience of skill development. These two psychological attributes were also positively related and goals of research project. In contrast, social support, was only significantly related to the respondents' experiences of intellectual climate ($r=0.20$, $p < 0.05$) and their understanding of goals and standards of research projects ($r=0.27$, $p < 0.05$). The strength of associations was considered small (Cohen, 1988).

Overall, the findings provide support that postgraduates' psychological attributes could play a role in influencing their experiences during higher degree research program. The higher their self-efficacy, independent learning, and social support, the more positive are their research experiences. Arguably, postgraduate research candidates who are empowered psychologically may be more proactive in shaping their research experiences during their course of study. Hence, strategic planning can be implemented at the university or school level to enhance postgraduates' learning skills, motivation (e.g., self-efficacy) and social support so that they are more proactive in shaping own research experiences and perceive their research program as more rewarding.

Table 3: Correlational Analysis between Postgraduates Research Experience and Psychosocial Attributes

Variables	Psychosocial Attributes		
Postgraduate Research Experiences	Self-Efficacy	Competency in Independent Learning	Social Support
Supervision	0.39**	0.21*	0.14
Skill Development	0.51**	0.53**	0.17
Infrastructure	0.29**	0.34**	0.13
Intellectual Climate	0.14	0.36**	0.20*
Goals and Standards of Research Project	0.42**	0.46**	0.27*

Note: ** $p < 0.01$, * $p < 0.05$

4. Conclusion

This study conducted at Deakin University broadly reflects the findings nationally and internationally concerning postgraduate research students experiences. It comprised an online survey administered to 1200 higher degree by research students, of whom 134 responded. Although most respondents reflected positively on their postgraduate research experiences, there were modestly positive responses to some statements about research infrastructure and intellectual climate. It was shown that there were positive correlatiosn between students' confidence and competency and their proactve engagement with their research experiences and their perceptions thereof. It was also found that 'fast track' supervisors were perceived slightly more favourably by their candidates than were the 'normal' supervisors; although this was not significant, it indicates that the 'fast track' supervisor development appears to be successful.

References

Affero Ismail, Norhasni Zainal Abidin, and Aminuddin Hassan. (2011). Improving the development of Postgraduates' Research and Supervision. International Education Studies, 4(1), 78-90.

Astin, A. W. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Personnel, 25*, 297-308.

Australian Graduate Survey: Postgraduates: Summary Report. (2009). Planning Unit: Deakin University.

Biggs, J. (2003).Teaching international students. In J. Biggs, *Teaching for quality learning at university* (2nd ed.) (pp. 120-139). Maidenhead: Open University Press.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

Hodsdon, L. & Buckley, A. (2011). Postgraduate Research Experience Survey. UK: The Higher Education Accademy. Retrieved 23 September 2011 from http://www.heacademy.ac.uk/assets/documents/postgraduate/PRES_report_2011.pdf

Institute of Research Training. (2011). Fast-Track Supervisor Training Program. Retrieved 24 September 2011 from http://www.deakin.edu.au/research/admin/ecr/documents/fast-track-program.pdf

Kennett, D. J. (1994). Academic Self-Management Counseling: Preliminary Evidence for the importance of learned resourcefulness on program success. Studies in Higher Education, 19(3), 295-307.

LERU (2007) *Doctoral studies in Europe: excellence in researcher training,* Leuven, Belgium: League of European Research Universities (LERU).

Pierce, J. W. & Lange, H. (2000). *Self-Regulated Learning in Higher Education: A learned-Centred Educational Psychology Course*. Paper presented at the Mid-Western Educational Research Association, Chicago, Illinois. Retrieved 10th March 2009, from http:www.cedu.niu.edu/~pierce/mwera2000paper.htm

Pintrich, P.R., D.A.R Smith, T. Garcia, and W. McKeachie, 1991. A manual for the use of the motivated strategies for learning questionnaire (MSLQ). University of Michigan, National Center for Research to Improve Postsecondary Teaching and Learning, Ann Arbor, MI.

Siikamäki, Juha, and Kris Wernstedt. 2008. "Turning Brownfields into Greenspaces: Examining Incentives and Barriers to Revitalization." *Journal of Health Politics, Policy, and Law*, 33(3):559-593.

UNESCO (2007) Trends and Issues in Postgraduate Education: Challenges for Research. Final Report of the UNESCO Forum on Higher Education, Research and Knowledge. Paris: UNESCO

Wernstedt, Kris, and Robert Hersh. 2006. "Brownfields Regulatory Reform and Policy Innovation in Practice." *Progress in Planning* 65(1):2-74.

Zimmerman, B. J., & Paulsen, A. S. (1995). Self-monitoring during collegiate studying: An invaluable tool for academic self-regulation. New Directions for Teaching and Learning, 63, 13-27.